

processing apparatus, for performing data conversion of the pictorial image data for forming images for use in record outputting to form images on a sheet by means of a printer, as anyone selected from those detailed in the following description
5 in the present disclosure.

The present disclosure and features and advantages thereof will be more readily apparent from the following detailed description and appended claims when taken with drawings.

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BRIEF DESCRIPTION OF THE DRAWINGS

In the following drawings, like references numerals will be used to refer to like elements in the various drawings, in which:

FIG. 1 is a schematic side view of a full color digital
15 duplication machine A1 according to one embodiment disclosed herein;

FIG. 2 is a diagrammatic schematic side view illustrating the construction of the color printer 100;

FIG. 3 is a diagrammatic block diagram illustrating the
20 overall circuit construction of an image data processing system for the duplication machine of FIG. 1;

FIG. 4 is a diagrammatic block diagram illustrating the overall functional construction of the CDIC unit;

FIG. 5 is a diagrammatic block diagram illustrating the
25 overall construction of the IMAC unit;

FIG. 6 is a block diagram illustrating in general the image data processing performed in the IPP unit;

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Fig. 7A, 7B

~~FIG. 7~~ is a block diagram illustrating the feature of the image data processing performed in the IPP unit of FIG. 6;

FIG. 8 is a block diagram illustrating the overall internal

construction of the IPP unit;

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Fig. 9A, 9B, 9C

~~FIG. 9~~ is a diagrammatic block diagram illustrating the

internal structure of a portion of the processor array 144;

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Fig. 10A, 10B

~~FIG. 10~~ includes a flow chart generally illustrating

gamma-conversion processing control by the global processor 148 of FIGS. 8 and 9;

10 FIGS. 11 through 14 illustrate the steps for operator parameter setting control according one embodiment disclosed herein, in which the operator parameter setting is carried out on each of the image data included in one block of equally divided parts assumed that input image data have the eight-bit
15 configuration and that the image density thereof ranging from 0 to 255 are divided into eight equal parts;

FIG. 15A is a drawing illustrating a polygonal line assumed for representing the input/output characteristic curve in use for gamma-conversion processing disclosed herein;

20 FIG. 15B includes a table illustrating conversion characteristic definition data sets $\{(x_i, y_i), a_i\}$ in use for gamma-conversion processing disclosed herein;

FIG. 15C illustrate an expression for computing output densities in the case when input density is to be quantized into
25 256 gradation;

FIG. 15D includes a table illustrating weighing factors used in the convolution calculation in gamma-conversion

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Fig. 16A, 16B

~~FIG.~~ 16 includes a flow chart illustrating an outline of gamma conversion processing control carried out by the global processor 148 in which the step of 'computing attribute data' included in Example 1 is replaced herein with the step of 'attribute data in'.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the detailed description which follows, specific
10 embodiments of a data processing apparatus and several systems incorporating the processing apparatus. It is understood, however, that the present disclosure is not limited to these embodiments. For example, it is appreciated that the data processing apparatus disclosed herein may also be adaptable to
15 any form of data conversion processing. Other embodiments will be apparent to those skilled in the art upon reading the following description.

In the present disclosure, a data processing apparatus is provided, including a data memory 146 for storing characteristic
20 definition data defined for each data attribute; a plurality of processing elements PE each for selecting a set of characteristic definition data from the characteristic definition data stored in the data memory 146 corresponding to each data and each data attribute out of a data stream to be processed, and perform a
25 processing of each data according to the group of characteristic definition data; and a process control means 148 for storing process control data for controlling processing of each data,